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(54) INTERFERENCE ALIGNER

interference fringes on the resist 7.

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(57) Abstract

PURPOSE: To manufacture a $\lambda/4$ shift type diffraction grating by using material easy to be worked and without necessitating non reflection coating, by forming step-differences on the surface of a mirror, which is turned into a reflection type phase shift plate.

CONSTITUTION: The step-difference of a phase shift plate 8 is about 900Å in high and about 300µm in wide, and coated with metal. Since laser beam does not permeate into the inside of the phase shift plate 7, material easy to be worked, e.g. metal like stainless also can be used. Flatness of the rear has no influence, and it is sufficient to work the single side only in a flat state. Nonreflection coating necessary for a transmission type phase shift plate is also unnecessary. One of the laser beams 1 for exposure, which is divided into two portions by a half-mirror 2, is reflected by a mirror 3 and reaches resist 7. The other one of the beams 1 is reflected by the phase shift plate 8, penetrates a collimator lens 5, reaches the resist 7, interferes with a beam entering from the opposite side, and generates

